FACT SHEET FOR NPDES PERMIT WA0023230
LACENTER SEWAGE TREATMENT PLANT

5/27/2004

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES) of permits, which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the state of Washington to administer the NPDES permit program. Chapter 90.48 Revised Code of Washington (RCW) defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits [Chapter 173-220 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least 30 days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	Clark Public Utilities
Facility Name and Address	City of LaCenter STP 150 West 4th Street LaCenter, WA 98668
Type of Treatment	Sequencing Batch Reactor using actived sludge and capable of extended aeration.
Discharge Location	East Fork Lewis River Latitude: 45º 51' 34" N Longitude: 122º 40' 13" W.
Water Body ID Number	Old ID No. WA-27-2020; New ID No. 1225781459549

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

As of the writing of this new fact sheet and permit, the facility is being rebuilt to replace an overloaded and outdated activated sludge system with a new sequencing batch reactor (SBR) system. Much of the original equipment will be replaced.

Clark Public Utilities took over ownership and operation of the waste water facility and service area by agreement on October 30, 1992. Some partial upgrades were made to the plant in 1994, 1995, and 1998 prior to the new rebuild.

COLLECTION SYSTEM STATUS

The plant serves a population of about 1,500. In addition to serving residences, the plant serves five restaurants, several small casinos, other small businesses, and schools located in the City. There are no industrial customers on the system. The PUD's consultant conducted an analysis of inflow and infiltration (I/I) and determined that the ratio of maximum monthly flow to annual flow was 1.7 and that the per capita day flow was 110 gpd. These factors show that there is some I/I, but that it is not excessive.

TREATMENT PROCESSES

Existing System:

The existing system will be kept going while the new system is being built. The permit should be complete about the time the new system comes on-line. The old system is activated sludge. The headworks has a Parshall flume and ultra-sonic flow meter followed by a HYCOR fine screen separator (this will be kept for the new system). There is an older fine screen separator that will likely be discontinued. Flow is split to two aeration basins and then to a secondary clarifier (the clarifier will be a waste activated sludge holding basin). The flow is sent through an AQUADISK filtration system (this will be used in the new system) before being sent to two side-by-side chlorine contact chambers.

New System:

The flow enters the plant and is screened by the existing HYCOR unit or a new HYCOR combination screening/grit removal unit. A Parshall flume with ultrasonic meter will measure flow. A pump station then pumps the flow up to the tandem sequencing batch reactors (SBRs). Flow leaving the SBRs flows through an equalization basin. The flow will then pass through an AQUADISK fabric filtration unit and then through a UV disinfection system. A new magnetic flow meter will be used to measure the final flow before going to the outfall to the East Fork Lewis River. A schematic of the new system may be found in Appendix C.

At the time of the site visit on August 20, 2003, there were several operators certified at various levels staffing the plant. There are two operators with group III certification, there are two Operator IIs, and one Operator I. The new facility will require a lead operator with group II certification.

The facility is staffed from 7:00 a.m., to 3:30 p.m., Tuesday through Saturday. On Sundays and Mondays an operator makes cursory visits to the plant. On the off hours, there are computer alarms and telemetry for alerting operators.

The new facility is being built with financing from the Public Works Trust Fund (PWTF) administered by the Department of Community Development (DCD). The loans are issued at up to three percent interest for a maximum term of 20 years, and up to 90 percent of the initial loan request. The total cost of the upgrade through 2010 is $3,547,000. Additional financing through the PWTF and the State Revolving Fund will be sought.

DISCHARGE OUTFALL

Secondary treated and disinfected effluent is discharged from the facility via 10-inch pipe and multiport diffuser into the East Fork Lewis River. The end of the outfall diffuser is about 15 feet into the river. The diffuser is a rectangular box with 28 6-inch by 2-inch ports with 14 of the ports facing upstream and 14 of the ports facing downstream. The dilution ratios were modeled and are discussed later in this fact sheet.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the secondary clarifier, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Sludge from the existing facility is digested in an old rectangular secondary clarifier and then run through a belt press that thickens the sludge with a polymer and then de-waters it. The thickened sludge is currently hauled to Fire Mountain Farms in Centralia. Grit, rags, scum, and screenings are drained and disposed of as solid waste at the local transfer station.

The new facility sludge process differs in the following ways (see Appendix C for the schematic). The old round secondary clarifier (different from the old clarifier noted above) will be converted into a waste activated sludge holding basin. The sludge belt press noted above will be used in dewatering the sludge. A new sludge hopper and sludge dryer will be added with plans to create Class A biosolids. Grit, rags, scum, and screenings will be drained and disposed of as solid waste at the local transfer station.

PERMIT STATUS

The previous permit for this facility was issued on January 12, 1999. The previous permit placed effluent limitations on five-day Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), pH, Fecal Coliform bacteria, total chlorine residual, and ammonia.

An application for permit renewal was submitted to the Department on October 29, 2003.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last inspection on August 20, 2003.

During the history of the previous permit, the Permittee has generally remained in compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. The facility regularly had flows that approached or exceeded design capacity. The previous plant experienced violations of permitted flows and effluent limits for BOD concentrations and percent removal. Because the old activated sludge system is being replaced with a new treatment plant, this permit will address only the new plant. There is no need to go into more detail on the old plant being replaced.

SEPA COMPLIANCE

The Clark Public Utilities filed an Environmental Checklist under SEPA for the La Center facility in April 2000 and made a declaration of nonsignificance for the project (Gibbs & Olson, 2003).

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation**.** Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the 2003 La Center Water Reclamation Plant Facilities Plan prepared by Gibbs and Olson and are as follows:

Table 1: Design Standards for La Center WWTP.

Parameter	Design Quantity
Monthly average flow (max. month)	0.56 MGD
Instantaneous peak (day) flow	1.0 MGD
BOD_5 influent loading	841 lb./day
TSS influent loading	902 lb./day
Design population equivalent	3000

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state).

These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD_5, and TSS are taken from Chapter 173-221 WAC are:

Table 2: Technology-based Limits.

Parameter	Limit
pH:	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD_5 (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

The existing permit has a chlorine limit of 0.1 mg/L, however, the new facility will have Ultra-Violet (UV) disinfection. Therefore, no chlorine limit will be needed.

The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

BOD Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly influent design loading (841 lbs/day) x 0.15 = 126 lbs/day.

TSS Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly influent design loading (902 lbs/day) x 0.15 = 135 lbs/day.

The BOD weekly average effluent mass loading is calculated as 1.5 x monthly loading = 189 lbs/day.

The TSS weekly average effluent mass loading is calculated as 1.5 x monthly loading = 203 lbs/day.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when receiving waters are of higher quality than the criteria assigned, the existing water quality shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses. Because ammonia is one of the major parameters of concern, the summer months from June through September when the water is warmest is the most critical period. The winter period was examined and found to not cause a problem.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are

receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the East Fork of the Lewis River which is designated as a Class A from the mouth of the river to Multon Falls at river mile 24.6. The outfall is located at approximately river mile 3.2. There are no other nearby point source outfalls. Significant nearby non-point sources of pollutants include livestock and onsite septic systems. Characteristic uses include the following: water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

The 303(d) list shows the Lewis E.F. listed for fecal coliform and temperature. However the evaluation sites for these listings appears to be upstream of the discharge by more than a mile.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	100 organisms/100 ml maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature	18 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

As stated above, the East Fork Lewis River has 303(d) listings for fecal coliform and temperature, however, there is no TMDL planned for this watershed at this time. More will be discussed about these items below.

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and are defined as follows:

> The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use of a combination of simple mixing, and dilution factors generated by the visual plumes computer model. Dilution factors were then determined

for dry season and wet season. Because the simple mixing dilution factors are the maximum available, any computer generated dilution factors that were above the simple mixing factors were rejected. The details of the mixing zone modeling were found in Gibbs and Olson, 2002. The final dilution factors are shown in the following table:

Dilution Factors for Aquatic Life

Scenario	Acute	Chronic
Existing Conditions (old plant)		
Dry Weather	**3.8**	**53.0**
Wet Weather	15.7	**73.0**
Future Conditions (2010)		
Dry Weather	**2.0**	10.8
Wet Weather	4.1	**20.9**

Values in bold were limited by plume dispersion characteristics.

The original table in the Facility Plan had values for future conditions through 2020, however, because these values were based on expansion of the facility at a later date, they were not included.

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for the East Fork Lewis River is the seven day average low river flow with a recurrence interval of ten years (7Q10). Ambient data at critical conditions in the vicinity of the La Center outfall was taken from the Department's Environmental Assessment Program on-line data base which has monthly data from a station located near Dollar Corner on the E.F. Lewis River. Ambient data was tabulated from January 1997, through September 2002. Temperature data is from DMR records for the period of August 200 through July 2003, and examined June – September temperatures. The ambient background data used for this permit includes the following:

Parameter	Value used
7Q10 low flow	60.7 cfs
Velocity	0.118 ft/sec
Depth	7.68 feet
Width	83 feet
Roughness (Manning)	n=0.050
Slope	1.43 E-06
Temperature	22.1ºC (90th percentile)
pH (high)	8.03 (90th percentile)

Dissolved Oxygen	9.03 mg/L (10th percentile)
Total Ammonia-N	18.2 µg/L June – October (Geomean x 1.74)
Fecal Coliform	180 org./100 ml June - October (90th percentile)
Conductivity	59 (90th percentile)
Turbidity	4.2 NTU (90th percentile)
Hardness*	13.6 mg/L as CaCO3 (from Gibbs & Olson, 2002)
Copper	4.1 µg/L (total recoverable max value out of three)
Silver	0.02 µg/L (all three values at or below detection limits)
Zinc	26.7 µg/L (total recoverable max value out of three)
All Other Metals	0.0 (Not tested but assumed to be below detection limits)

*When mixed with an effluent hardness of 69.3, the acute hardness would be 42 and the chronic hardness would be 19.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in monthly discharge monitoring reports. Toxic substances typical of municipal effluent were evaluated over the last several years of operation. Although the facility is being replaced, this data is necessary to evaluate the potential of the new facility to violate water quality standards. The effluent is characterized as follows:

Table 3: Wastewater Characterization

Parameter	Concentration	Statistic and Number of Samples
Ammonia	30.45 mg/L	95th percentile of 50
Copper	4.1 µg/L	Maximum out of 3
Silver	0.02 µg/L	Maximum out of 3
Zinc	26.7 µg/L	Maximum out of 3

BOD_5--Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitation for BOD_5 was placed in the permit.

The impact of BOD on the receiving water was modeled using simple mixing, at critical condition and with the technology-based effluent limitation for BOD_5 described under "Technology-Based Effluent Limitations" above. The calculations used to determine dissolved oxygen impacts are shown in Appendix C.

Temperature and pH--The impact of pH and temperature were modeled using the calculations from EPA, 1988. The input variables were dilution factor 10.8, upstream temperature 22.1ºC, upstream pH 8.03, upstream alkalinity 13.6(As mg $CaCO_3$/L. Because ambient alkalinity was not available, a hardness value of 13.6 was used as a gross approximation.), effluent temperature 20ºC, (this is a typical temperature for domestic waste water. The applicant has not been required to monitor effluent temperature in the past). The incremental change is a drop in temperature of 0.02ºC. The effluent would cool the river slightly.

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitations for pH was placed in the permit and temperature was not limited. However, ambient and effluent temperatures will need to be monitored over the life of this permit so that temperature can be evaluated in the next permit renewal. It is recommended that temperature be monitored with micro-recording thermistors monitors known at TIDBITS, which can be set to record several times an hour and can be retrieved at the end of the dry season. Data can then be down loaded into a computer.

Fecal coliform—The ambient fecal coliform levels in the summer are 180 org/100 ml which is higher than the Class A criterion of 100 org/100 ml. Therefore, the discharge will be limited to 100 org/100 ml weekly at the end of the pipe instead of the technology-based limitation. The monthly limit is based on the Class A water quality criterion which is a geometric mean of 100/100 ml and must not have more than ten percent of all samples obtained for all samples exceeding 200/100 ml. Therefore, the monthly limit will be 200/100 ml. Because the facility will have UV disinfection, it should have no problem meeting the new limits.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The toxic parameters shown in table 3 above were sampled from August 2001 through September 2003. Ammonia was sampled 50 times during the summer months, however the metals were only sampled three times. Therefore, the maximum value of the metals was used in evaluating the reasonable potential of the metals to cause a water quality violation.

The following toxics were determined to be present in the discharge: chlorine, ammonia, copper, and zinc. A reasonable potential analysis (See Appendix C) was conducted on these parameters to determine whether or not effluent limitations would be required in this permit.

The determination of the reasonable potential for ammonia in the summer and winter, copper, silver, and zinc to exceed the water quality criteria was evaluated with procedures given in EPA, 1991 (Appendix C) at the critical condition. The critical condition in this case occurs during the summer months. The parameters used in the critical condition modeling are as follows: acute dilution factor 2, chronic dilution factor 10.8, receiving water temperature 22.1ºC, receiving water hardness 13.6 (as mg $CaCO_3$/L). A mixing of hardness values using a minimum effluent value of 69.3 resulted in an acute boundary hardness of 42 and a chronic hardness of 19. The background level of ammonia was 16 µg/L. The background of copper, silver, and zinc was assumed to be zero since no data was available for these metals. A reasonable potential spreadsheet can be found in Appendix C. It is not yet known what the amount of metals in the effluent for the new plant will be.

Ammonia—The reasonable potential determination showed that ammonia limits were necessary for the critical summer period (June through October) but not during the winter months. Separate determinations were calculated for both the interim (old) system and the final (new) system using different dilution factors for each. In both cases an ammonia limit is needed, however the old system will be replaced by the time this permit is issued. The final ammonia limit calculations sheet may be found in Appendix C. The final ammonia limit will be 4.5 mg/L monthly and 9 mg/L daily.

Copper—The amount of copper found in the discharge was 4.1 µg/L. More sampling will be required to determine if a limit for copper will be needed with the new facility.

It is possible that the new facility will be able to remove copper to a higher degree. With more samples, a 95th percentile can be used instead of the maximum that was used in the reasonable potential. Only three samples were taken of each metal which drives up the multiplier used in the reasonable potential calculation. As noted above, mixed hardness values were used, which reduced the final metals values below the reasonable potential threshold. It is likely that more samples taken with clean sampling techniques could show a reduced potential for violation of the water quality standards. Approximately 25 samples would be needed with no sample exceeding the 4.1 µg/L and no change in the ambient hardness for copper to fall below the reasonable potential threshold. The low hardness in the river is also resulting in lower metals criteria. Because the metals were close to the reasonable potential threshold, it will be necessary to further sample metals and hardness of the effluent and river in the vicinity of the outfall.

Zinc—The amount of zinc found in the discharge was 26.7 µg/L. Most of the consideration discussed above for copper apply to zinc, however, approximately 15 samples with none above 0.02 µg/L would be needed to fall below the reasonable potential threshold with the base hardness unmixed.

Silver—The Silver effluent values were all below detection. Therefore a Silver limit is not required.

Other metals—Lead should also be examined in the effluent from the new facility. Clean sampling techniques and EPA Method 1669 should be used for all metals or the results may not be valuable. At least ten samples should be taken and the metals re-evaluated at the next permit renewal. Ambient metals and hardness should be sampled above the discharge with each effluent metals sample.

Water quality criteria for metals in Chapter 173-201A WAC are based on the dissolved fraction of the metal.

The Permittee may provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Metals criteria may be adjusted on a site-specific basis when data is available clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge.

Metals criteria may also be adjusted using the water effects ratio approach established by USEPA, as generally guided by the procedures in USEPA Water Quality Standards Handbook, December 1983, as supplemented or replaced.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

In accordance with WAC 173-205-040, the Permittee's effluent has been determined to have the potential to contain toxic chemicals. The proposed permit contains requirements for whole effluent toxicity testing

as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in Chapter 173-205 WAC. The proposed permit requires the Permittee to conduct toxicity testing for one year in order to determine both the acute and chronic toxicity of the effluent.

If acute or chronic toxicity is measured during effluent WET testing at levels that, in accordance with WAC 173-205-050(2)(a), have a reasonable potential to cause receiving water toxicity, then the Permittee may be required to do additional testing through a WET limit characterization in the next permit cycle.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC_{50}, EC_{50}, IC_{25}, etc. All accredited labs have been provided the most recent version of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center 360-407-7472 for a copy. The Department recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard." The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health, and is undergoing technology-based upgrades. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED IN 1999

	Existing Limits (1999 permit)		**New Limits for New Facility**	
Parameter	**Avg Monthly**	**Avg Weekly**	**Avg Monthly**	**Avg Weekly**
BOD_5	30 mg/L, 67 lbs/day and 85% min removal	45 mg/L, 100 lbs/day	30 mg/L, 126 lbs/day and 85% min removal	45 mg/L, 189 lbs/day

TSS	30 mg/L, 73 lbs/day and 85% min removal	45 mg/L, 109 lbs/day	30 mg/L, 135 lbs/day and 85% min removal	45 mg/L, 203 lbs/day
Fecal Coliform Bacteria	400/100 ml	200/100 ml	200/100 ml	100/100 ml
pH	Shall not be outside the range 6.0 to 9.0		Shall not be outside the range 6.0 to 9.0	
Total residual chlorine	Minimized	100 ug/L	No chlorine limits because of UV new disinfection	
Parameter			**Avg Monthly**	**Daily Maximum**
Ammonia (NH3-N)	Monitor for ammonia, review, and implement alternative for nitrification treatment	Optimize plant operation for nitrification and monitor. See S1C	4.5 mg/L (June through October)	9 mg/L (June through October)

The new plant is due to come on-line in April 2004. Several footnotes accompanied the existing permit tables. Similar footnotes may be found in the new permit but were not included here as these tables are intended to briefly show the differences in the new and old limits

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring for lead is being required to further characterize the effluent. This pollutant could have a significant impact on the quality of the surface water.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 1994) for an activated sludge system like these sequencing batch reactors.

Additional monitoring is required in order to further characterize the effluent. These monitored pollutants could have a significant impact on the quality of the surface water.

As a pretreatment POTW serving the City of LaCenter, the Clark Public Utility is required to have influent, final effluent, and sludge sampled for toxic pollutants in order to characterize the industrial input. Sampling is also done to determine if pollutants interfere with the treatment process or pass through the plant to the sludge or the receiving water. The monitoring data will be used by the

Department or the Clark Public Utilities to develop local limits which commercial and industrial users must meet.

EFFLUENT LIMITS BELOW QUANTITATION

The water quality-based effluent limits may be below the capability of current analytical technology to quantify. The Quantitation Level is the level at which concentrations can be reliably reported with a specified level of error. For maximum daily effluent limits, if the measured effluent concentration is below the Quantitation Level, the Permittee reports NQ for non-quantifiable. For average monthly effluent limits, all effluent concentrations below the Quantitation Level but above the Method Detection Level are used as reported for calculating the average monthly value.

EFFLUENT LIMITS BELOW DETECTION

The water quality-based effluent limits may be below the capability of current analytical technology to detect. The Method Detection Level (MDL) is the minimum concentration of an analyte that can be measured and reported with a 99 percent confidence that its concentration is greater than zero as determined by a specific laboratory method. For maximum daily limits, if the concentrations are below the MDL the Permittee reports ND for non-detectable. For average monthly limits, all values above the MDL are used as reported and all values below the MDL are calculated as zero.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories.* The laboratory at this facility is accredited for BOD/CBOD, total residual chlorine, dissolved oxygen, pH, total suspended solids, and fecal coliform.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4 restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards, WAC 173-201A, and Biosolids Handling regulations covered under WAC 173-308.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by the Department under Chapter 70.95J RCW and Chapter 173-308 WAC. The disposal of other solid waste is under the jurisdiction of the local health district.

PRETREATMENT

Federal and State Pretreatment Program Requirements

Under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986), the Department has been delegated authority to administer the Pretreatment Program [i.e. act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)]**.** Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program [40 CFR 403.8(f)(1)(iii)], the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) [40 CFR 403.8 (f)(1)(i)].

The Department is responsible for issuing State Waste Discharge Permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge [WAC 173-216-110(5)] (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.). Industrial dischargers need to apply for a State Waste Discharge Permit 60 days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts with the POTW, and other conditions necessary to assure compliance with state water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g. tracking the number and general nature of industrial dischargers to the sewage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities [40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.].

Wastewater Permit Required

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

Requirements for Routine Identification and Reporting of Industrial Users

The NPDES permit requires non-delegated POTWs to " take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system." Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a state waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a state waste discharge permit application.

Annual Submittal of List of Industrial Users

This provision requires the POTW to submit annually a list of existing and proposed SIUs and PSIUs. This requirement is intended to update the Department on an annual basis of the status of industrial users in the POTW's service area, without requiring the POTW to go through the process of performing a formal Industrial User Survey. This provision is normally applied to POTWs not serving industrial or commercial users. Although this permit does not require performance of an Industrial User Survey, the Permittee is nevertheless required under the previous section, to take adequate continuous routine measures to identify existing and new industrial discharges.

Duty to Enforce Discharge Prohibitions

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass-through or interference. The definitions of pass-through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

Support by the Department for Developing Partial Pretreatment Program by POTW

The Department has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

OUTFALL EVALUATION

Proposed permit Condition S.11 requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Gibbs & Olson, Inc.

2002 August. La Center Water Reclamation Plant Mixing Zone Modeling Study and Water Quality Evaluation. Prepared for Clark Public Utilities. Project No.:363.0201

2003 February. La Center Water Reclamation Plan Facilities Plan. Prepared for Clark Public Utilities.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

Laws and Regulations(http://www.ecy.wa.gov/laws-rules/index.html)

Permit and Wastewater Related Information (http://www.ecy.wa.gov/programs/wq/wastewater/index.html)

River and Stream Water Quality Monitoring. Data for the East Fork Lewis River near Dollar Corner (http://www.ecy.wa.gov/apps/watersheds/riv/station.asp?sta=27D090)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on December 19, 2003, in the *Columbian* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on March 14, 2004, in the *Lewis River News* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Carey Cholski
Municipal Permit Administrator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98502.

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone (360) 407-6554, or by writing to the address listed above.

This permit and fact sheet were written by Eric Schlorff.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of prevention, control, and treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

CBOD5 – The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celsius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD5 is given in 40 CFR Part 136.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring –Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued there under (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through -- A discharge which exits the POTW into waters of the–State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at (http://www.ecy.wa.gov/programs/wq/wastewater/index.html

Summer Ammonia Criteria Calculation

Calculation Of Ammonia Concentration and Criteria for fresh water. Based on EPA Quality Criteria for Water (EPA 400/5-86-001) and WAC 173-201A. Revised 1-5-94 (corrected total ammonia criterion). Revised 3/10/95 to calculate chronic criteria in accordance with EPA Memorandum from Heber to WQ Stds Coordinators dated July 30, 1992.

INPUT	
1. Ambient Temperature (deg C; 0<T<30)	22.1
2. Ambient pH (6.5<pH<9.0)	8.03
3. Acute TCAP (Salmonids present- 20; absent- 25)	20
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15
OUTPUT	
1. Intermediate Calculations:	
Acute FT	1.00
Chronic FT	1.41
FPH	1.00
RATIO	14
pKa	9.33
Fraction Of Total Ammonia Present As Un-ionized	4.7233%
2. Un-ionized Ammonia Criteria	
Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	260.0
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	42.0
3. Total Ammonia Criteria:	
Acute Total Ammonia Criterion (mg NH3+ NH4/L)	5.5
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	0.9
4. Total Ammonia Criteria expressed as Nitrogen:	
Acute Ammonia Criterion as mg N	4.5
Chronic Ammonia Criterion as N	0.73

Winter Ammonia Criteria Calculation

Calculation Of Ammonia Concentration and Criteria for fresh water. Based on EPA Quality Criteria for Water (EPA 400/5-86-001) and WAC 173-201A. Revised 1-5-94 (corrected total ammonia criterion). Revised 3/10/95 to calculate chronic criteria in accordance with EPA Memorandum from Heber to WQ Stds Coordinators dated July 30, 1992.

INPUT	
1. Ambient Temperature (deg C; 0<T<30)	11.9
2. Ambient pH (6.5<pH<9.0)	7.70
3. Acute TCAP (Salmonids present- 20; absent- 25)	20
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15
OUTPUT	
1. Intermediate Calculations:	
Acute FT	1.75
Chronic FT	1.75
FPH	1.20
RATIO	14
pKa	9.67
Fraction Of Total Ammonia Present As Un-ionized	1.0695%
2. Un-ionized Ammonia Criteria	
Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	123.6
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	28.2
3. Total Ammonia Criteria:	
Acute Total Ammonia Criterion (mg NH3+ NH4/L)	11.6
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	2.6
4. Total Ammonia Criteria expressed as Nitrogen:	
Acute Ammonia Criterion as mg N	9.5
Chronic Ammonia Criterion as N	2.16

Dissolved oxygen concentration following initial dilution.

References: EPA/600/6-85/002b and EPA/430/9-82-011

Based on Lotus File IDOD2.WK1 Revised 19-Oct-93

INPUT	
1. Dilution Factor at Mixing Zone Boundary:	10.8
2. Ambient Dissolved Oxygen Concentration (mg/L):	9.03
3. Effluent Dissolved Oxygen Concentration (mg/L):	2
4. Effluent Immediate Dissolved Oxygen Demand (mg/L):	0
OUTPUT	
Dissolved Oxygen at Mixing Zone Boundary (mg/L):	8.38

Reasonable Potential table

Parameter	Metal Criteria Translator as decimal Acute	Metal Criteria Translator as decimal Chronic	Ambient Concentration (metals as dissolved) *ug/L*	State Water Quality Standard Acute *ug/L*	State Water Quality Standard Chronic *ug/L*	Max concentration at edge of... Acute Mixing Zone *ug/L*	Max concentration at edge of... Chronic Mixing Zone *ug/L*	**LIMIT REQ'D ?**
Final Ammonia (Summer)	1.000	1.000	16.0	4500	730	15791.35	2937.36	**YES**
Final Ammonia (Winter)	1.000	1.000	10	9500.0000	2160.0000	7754.27	1530.19	**NO**
Final Copper	0.996	0.996	0	7.43	2.72	6.12	1.13	**NO**
Final Silver	0.850	NA	0	0.76	NA	0.03	0.01	**NO**
Final Zinc	0.996	0.996	0	54.32	25.36	39.89	7.39	**NO**

*Silver effluent values were all below detection. Therefore a Silver limit is not required. A hardness value of 13.6 was used for metals that when mixed with effluent with a hardness of 69.3 resulted in an acute hardness of 42 and a chronic hardness of 19.

Calculations and Inputs for Reasonable Potential Table

	Effluent percentile value		Max effluent conc. measured (metals as total recoverable)	Coeff Variation		# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor
Parameter		*Pn*	*ug/L*	*CV*	*s*	*n*			
Final Ammonia (Summer)	0.95	0.933	30450.00	0.60	0.55	51	1.04	2.0	10.8
Final Ammonia (Winter)	0.95	0.933	30450.00	0.60	0.55	51	1.04	4.1	20.9
Final Copper	0.95	0.368	4.1000	0.60	0.55	3	3.00	2.0	10.8
Final Silver	0.95	0.368	0.02	0.60	0.55	3	3.00	2.0	10.8
Final Zinc	0.95	0.368	26.70	0.60	0.55	3	3.00	2.0	10.8

Permit Limit Calculation Summary

PARAMETER	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translator Acute	Metal Criteria Translator Chronic	Ambient Concentration *ug/L*	Water Quality Standard Acute *ug/L*	Water Quality Standard Chronic *ug/L*	Average Monthly Limit (AML) ug/L	Maximum Daily Limit (MDL) ug/L
Final Ammonia (summer)	2.00	10.80	1.00	1.00	2.00	4500.00	730.00	**4478.1**	**8984.0**

Permit Limit Calculation Summary Continued

Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations

PARAMETER	WLA Acute *ug/L*	WLA Chronic *ug/L*	LTA Acute *ug/L*	LTA Chronic *ug/L*	LTA Coeff. Var. (CV) *decimal*	LTA Prob'y Basis *decimal*	Limiting LTA *ug/L*	Statistical variables for permit limit calculation: Coeff. Var. (CV) *decimal*	AML Prob'y Basis *decimal*	MDL Prob'y Basis *decimal*	# of Samples per Month *n*	
Final Ammonia (summer)	8982	7705.64	2883.9	4064.2	0.60	0.99	2883.9	0.60	0.95	0.99	4.00	1.00

This spreadsheet calculates water quality based permit limits based on the two value steady state model using the State Water Quality standards contained in WAC 173-201A. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 99. Last revision date 9/98. Written by G. Shervey

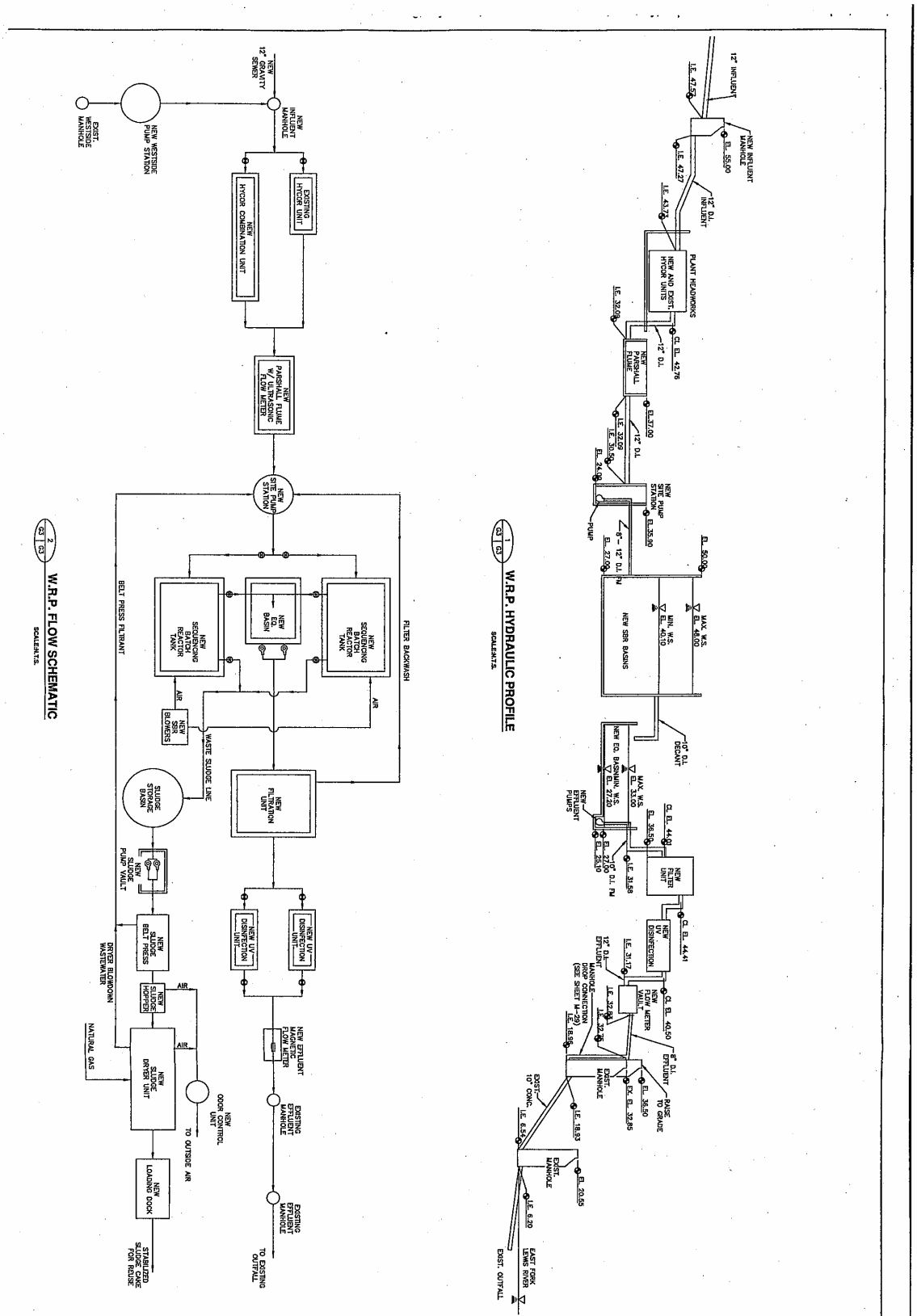
Calculation of pH of a mixture of two flows.

Based on the procedure in EPA's DESCON program (EPA, 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington D.C.) Based on Lotus File PHMIX2.WK1 Revised 19-Oct-93

INPUT

1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	10.800	10.800
1. UPSTREAM/BACKGROUND CHARACTERISTICS		
Temperature (deg C):	21.29	21.29
pH:	8.03	8.03
Alkalinity (mg CaCO3/L):	13.60	13.60
2. EFFLUENT CHARACTERISTICS		
Temperature (deg C):	20.00	20.00
pH:	9.00	6.00
Alkalinity (mg CaCO3/L):	150.00	150.00

1. IONIZATION CONSTANTS		
Upstream/Background pKa:	6.37	6.37
Effluent pKa:	6.38	6.38
2. IONIZATION FRACTIONS		
Upstream/Background Ionization Fraction:	0.98	0.98
Effluent Ionization Fraction:	1.00	0.29
3. TOTAL INORGANIC CARBON		
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	13.90	13.90
Effluent Total Inorganic Carbon (mg CaCO3/L):	150.36	511.49
4. CONDITIONS AT MIXING ZONE BOUNDARY		
Temperature (deg C):	21.17	21.17
Alkalinity (mg CaCO3/L):	26.23	26.23
Total Inorganic Carbon (mg CaCO3/L):	26.54	59.97
pKa:	6.37	6.37
pH at Mixing Zone Boundary:	8.31	6.26


W.R.P. FLOW SCHEMATIC
SCALE:N.T.S.
W.R.P. HYDRAULIC PROFILE
SCALE:N.T.S.
NEW WESTSIDE PUMP STATION
EXIST. WESTSIDE MANHOLE
NEW GRAVITY SEWER
NEW INFLUENT MANHOLE
HYCOR CONDENSATION UNIT
EXISTING HYCOR UNIT
NEW PARSHALL FLUME W/ ULTRASONIC FLOW METER
NEW STEP SCREEN STATION
NEW SEQUENCING BATCH REACTOR TANK
NEW EQ BASIN
NEW SEQUENCING BATCH REACTOR TANK
NEW SBR BLOWERS
AIR
WASTE SLUDGE LINE
FILTER BACKWASH
BELT PRESS FILTRANT
SLUDGE STORAGE BASIN
NEW FLOTATION UNIT
NEW SLUDGE PUMP VAULT
NEW SLUDGE BELT PRESS
DRYER BLOWDOWN WASTEWATER
NEW SLUDGE HOPPER
NATURAL GAS
NEW SLUDGE DRYER UNIT
NEW ODOR CONTROL UNIT
TO OUTSIDE AIR
NEW LOADING DOCK
STORED CAKE SLUDGE FOR REUSE
NEW UV DISINFECTION UNIT
NEW UV DISINFECTION UNIT
NEW EFFLUENT FLOW METER
EXISTING EFFLUENT MANHOLE
EXISTING EFFLUENT MANHOLE
TO EXISTING OUTFALL
12" INFLUENT
I.E. 47.58
NEW INFLUENT MANHOLE
EL. 55.00
I.E. 42.27
15" DI. INFLUENT
I.E. 43.72
PLANT HEADWORKS
NEW AND EXIST. HYCOR UNITS
I.E. 35.09
NEW PARSHALL FLUME
12" D.I.
CL EL. 42.76
EL. 37.09
I.E. 32.59
12" D.I.
I.E. 30.59
EL. 24.48
NEW SITE PUMP STATION
PUMP
EL. 35.50
8" - 12" D.I. PW
EL. 27.00
EL. 50.00
NEW SBR BASINS
MIN. W.S. EL. 40.10
MAX. W.S. EL. 46.00
10" D.I. DECANT
NEW EQ. BASIN
MIN. W.S. EL. 33.00
MAX. W.S. EL. 27.20
NEW EFFLUENT PUMPS
CL EL. 44.01
EL. 36.50
EL. 27.00
EL. 25.10
10" D.I. PW
I.E. 31.58
NEW FILTER UNIT
CL EL. 44.41
NEW UV DISINFECTION
I.E. 31.17
12" D.I. EFFLUENT
MANHOLE - DROP CONNECTION (SEE SHEET M-2)
I.E. 32.36
I.E. 30.36
NEW FLOW METER VAULT
CL EL. 40.50
8" D.I. EFFLUENT
RAISE TO GRADE
EXIST. MANHOLE
EX. EL. 32.85
EL. 36.50
EXIST. 10" CONC.
I.E. 6.84
I.E. 18.93
EXIST. MANHOLE
EL. 20.59
I.E. 6.20
EAST FORK LEWIS RIVER
EXIST. OUTFALL
GIBBS & OLSON INC
Engineers • Planners • Surveyors
LONGVIEW • OLYMPIA
WASHINGTON
Designed
Drawn
Checked
Approved
Date
H.Scale: AS
V.Scale: SHOWN
Datum:
Survey Books:
Project Directory: 3630201
AutoCAD File:
Job Number 363.0201
Bid Schedule
Drawing Number G3
Sheet Number 3 of
CLARK PUBLIC UTILITIES
WATER RECLAMATION PLANT
LA CENTER, WASHINGTON
HYDRAULIC PROFILE
AND PLANT FLOW SCHEMATIC
EXHIBIT 7.1

APPENDIX D--RESPONSE TO COMMENTS

Two comment letters were received under the public review: the Permittee (Clark Public Utilities), and The Department of Natural Resources. The following comments numbered 1-30 are from Clark Public Utilities submitted on April 14, 2004, during the Public Review:

Opening Comment:

> Several of our comments are based on apparent differences in the data utilized by Ecology when compared to the data utilized by CPU and G&O to perform evaluations related to metals and ammonia during dry weather. It is our understanding that Ecology's evaluations were based on the dry weather period being defined as June 1st through October 31st of each year. CPU and G&O have updated our evaluations based on this dry weather time period, however, there are still some differences in the statistical values utilized in Ecology's evaluation when compared to our evaluation. We believe these differences should be discussed so that Ecology and CPU are on the same page as to the data set and the statistical values utilized in the evaluations. To aid in this discussion, we have attached all of the data we have utilized so that Ecology can compare it to the data utilized in your evaluation. We would like to work with Ecology to ensure that we agree with the data being utilized in developing permit requirements. As professional public entities, Ecology and CPU can best serve the public's interest by reaching agreement on the data behind the permit requirements.

Response:

The Department believes that June through September best represents the critical conditions. Our policy is to use data that best represents the critical conditions (see comment 17).

Comment 1; Page 4:

> As agreed to during our March 31st meeting, the first submittal date for the annual Infiltration and Inflow Evaluation report should be changed to July 15, 2005.

Response:

> We have made the requested change to the date.

Comment 2, Page 4:

> As agreed to during our March 31st meeting, the first submittal date for the annual Waste Load Assessment report should be changed to March 15, 2005.

Response:

> We have made the requested change to the date.

Comment 3, Page 4:

We disagree with the deadline to develop a Residual Solid Management Plan by December 15, 2005. The new Biosolids Statewide General Permit is currently being revised and has not yet been completed by Ecology. Until the General Permit is completed and a clear understanding of the requirements imposed by the General Permit and the Residual Solid Management Plan are defined, the scope of work for developing the management plan and a schedule to complete the work cannot be identified. We believe the submittal date for the Residual Solid Management Plan should be changed to one year after the new statewide General Permit is issued by Ecology. This was agreed to in principle by all parties at the March 31st meeting.

Response:

During our meeting on March 31st the Department agreed only to discuss this permit language with the Solid Waste Program which we have done. Based on this discussion, any changes that will be forth coming in the new general permit language are unlikely to change this portion of your NPDES permit. The language in the NPDES is acceptable to the Solid Waste Program. The date will therefore not be changed.

Comment 4, Page 4:

We understand that the submittal date for the application for permit renewal will be changed to correspond to 4.5 years from the date this final permit is issued.

Response:

As requested, we will change the date to be closer to the 180 days before the permit expires. In order to retain a hard date, the date was changed to November 15, 2008.

Comment 5, Page 5:

We do not believe it is reasonable to place final ammonia limits in the permit for the new WRP since; 1) there is no data yet available from the new WRP; and 2) using old data from the old plant is not good science. Limits based on the existing plant are very likely to be too conservative for the new plant because effluent from the new plant will have significantly lower ammonia concentrations than the existing plant because of the new plant's ability to nitrify during summer months. This was agreed to in principle at the March 31st meeting by all parties.

Ecology indicated during our meeting that without limits being incorporated into the permit there is no mechanism to assure that the plant is operated so that nitrification occurs during the dry weather period. CPU believes language related to effluent ammonia limitations in the current permit (page 5, SI A - Effluent Limitations) stating "Optimize plant operation for nitrification and monitor " provides an effective mechanism for ensuring the new plant is operated so that nitrification occurs during the dry weather period if included in section SI A of the new permit. Additionally, we are willing to monitor effluent ammonia concentrations once a week. We propose that this frequency be included in section S2 Monitoring Requirements of the new permit. This will allow good data from the new plant to be collected so that the Reasonable Potential to Exceed (RPE) evaluation for effluent ammonia can be performed at the end of this new 5-year permit cycle and limits if necessary for the new plant can be developed utilizing applicable data and "good science."

Response:

Even though there is no data from the new plant, the Department is charged with making the best determination as to what the new plant can do and how well the new plant will be operated based on past data and best professional judgment. What the new plant can do and what the permit should be held to are two different things. Our experience with narrative limits has shown that non-numeric limits are not as effective in encouraging proper operation. It is clear from comment 16, which referred to the old narrative ammonia limit, that you did not think you had an ammonia limit. After reexamining the data (see response to 17), we will retain the ammonia limit. If the plant proves to have low ammonia in the effluent, a limit may be reexamined during the next permit cycle.

Comment 6, Page 7:

We have demonstrated that by using the blended hardness concentration at the edge of the mixing zone, based on the mass balance of effluent and river flow in the mixing zone, that there is no RPE water quality standards for copper, zinc or lead based on the available data. This approach has been accepted by Ecology in past RPE evaluations. The result from this approach that there is no RPE for copper, zinc, and lead was agreed to by all parties at the March 31st meeting.

Ecology indicated that having three data points for copper and zinc, and a single data point for lead, are small data sets by which to make determinations regarding the potential to exceed water quality standards for the metals in question. For this reason Ecology is indicating that additional sampling over the new 5-year permit cycle (2004-2009) should be done for these three metals at a frequency of two samples for each metal during the dry season on an annual basis as discussed in the March 31st meeting so that the next RPE evaluation will be based on a larger data set.

We respectively disagree about the need for continued sampling for these three metals since the available high-quality data for copper and zinc and the single lead sample indicates there is no RPE water quality standards through the new 5-year permit cycle.

The data set available for copper and zinc was collected by CPU in 2002 during preparation of the **La Center Water Reclamation Plant - Mixing Zone Study and Water Quality Evaluation** (Gibbs & Olson, August 2002) utilizing clean metals sampling techniques.

The single lead sample was tested utilizing a laboratory procedure with a detection limit of 2.0 µg/l and the test result for the sample was a non-detect. Since the result was a non-detect the Permit Writer's Manual would allow the sample value to be input to the RPE as 0 µg/l; however, to be conservative we utilized a value of 1.0 µg/l (the detection limit proposed in the new permit) in our RPE evaluations for the interim conditions and for year 2010.

The RPE spreadsheet also contains statistical measures to provide additional conservatism to address uncertainty or variability in the available data set (the fewer the samples the higher the multipliers become to provide increased conservatism to the evaluation). It is our opinion that the conservatism inherent in the RPE spreadsheet coupled with our conservative approach utilized in ensuring high-quality copper and zinc data was collected and use of a lead concentration of 1.0 µg/l for the single non-detect lead sample results in a very conservative approach to the RPE evaluations for copper, zinc and lead. The results of these conservative RPE evaluations is that there is no RPE water quality standards in the receiving water for copper, zinc or lead.

Another factor which also increases the conservatism in the RPE evaluations is that the ambient hardness concentration used for the river is based on hardness data collected in the mid-1970's. This data shows the river hardness at that time to be very low compared to typical hardness concentrations currently seen in Southwest Washington surface waters. Land-use changes which have occurred in the watershed over the past 30 years typically increase ambient surface water hardness concentrations so it is a reasonable assumption that the hardness concentration in the East Fork of the Lewis River today is higher than it was in the mid-1970's. A higher ambient hardness concentration would allow for increased metals to be discharged without violating water quality standards. Using the lower hardness concentration as was done in the RPE evaluations for copper, zinc and lead therefore results in a more conservative evaluation.

For these reasons we believe the RPE evaluations performed which show no RPE water quality standards for copper, zinc and lead are more than adequate for making the determination that no additional effluent metals sampling/testing is required and we respectively request that the requirements for sampling/testing of two times per dry weather period as proposed by Ecology during the March 31st meeting be removed from the permit. We appreciate Ecology's desire to collect more data; however, we do not believe that limited resources should be utilized to collect data that is not justified based on the results of the conservative evaluations completed with existing data.

Response:

The blended hardness will be used in the final Reasonable Potential evaluation and the result is that there will not be limits for copper, zinc, and lead. However, it is important to note that the Reasonable Potential values were close and that testing should continue. The Reasonable Potential is intended for determining if limits are needed, but testing may still be needed. The assumption that there is no Reasonable Potential is based on some questionable practices. First, the use of blended hardness relies on the metals becoming less toxic with blending. However, the further you are from the end of the discharge pipe the less the hardness is blended and the more toxic the metals become. Secondly, the sample size (three samples) is very small which reduces the data's reliability. Therefore, sampling for site specific hardness and repeated metals sampling using clean sampling techniques will be required in the new permit. We are requiring the Permittee to sample, but we are not setting a limit. It is our professional judgment that further testing is needed.

We welcome a re-evaluation of hardness, but at present we are forced to use the best available information. We will still require the site-specific hardness testing.

Comment 7, Page 12:

As agreed to during our March 31st meeting, the first submittal date for the annual Infiltration and Inflow Evaluation report should be changed to July 15, 2005. (Refer to comment 1 above).

Response:

The date has been changed to 2005 as requested.

Comment 8, Page 12:

As agreed to during our March 31st meeting, the first submittal date for the annual Waste Load Assessment report should be changed to March 15, 2005. (Refer to comment 2 above).

Response:

The date has been changed to 2005 as requested.

Comment 9, Page 13:

As agreed to during our March 31st meeting, the language in Item E Prevent Connection of Inflow needs to be revised to read as follows since CPU is not capable of implementing ordinances.

"The Permittee shall work with the City of La Center to not allow the connection of inflow (roof drains, foundation drains, etc.) to the sanitary sewer system."

Response:

The sentence has been changed as suggested.

Comments 10, Page 15:

We would like clarification on why a letter needs to be sent to Ecology annually if there are no changes to the O&M manual. This requirement seems to result in unnecessary paperwork.

Response:

The letter from the Permittee to the Department regardless of changes to the plant is to assure that you have examined your O&M Manual and assure that nothing has changed. It is our experience with a plant this size that something will likely change in the equipment that should be reflected in the manual.

Comment 11, Page 17:

We believe the submittal date for the Residual Solid Management Plan should be changed to one year after the new statewide General Permit is issued by Ecology. This was agreed to in principle by all parties at the March 31st meeting. (Refer to comment 3 above).

Response:

See response to comment 3 above. The Department does not have a hard date for when the Biosolids General Permit will be issued. The Solid Waste Program has reviewed the language in this NPDES permit and found it acceptable, therefore, the date in this permit will stand.

Comment 12, Page 18:

We believe there is no reason to monitor the receiving water for copper, zinc, and lead for the same reasons we believe that monitoring plant effluent is unnecessary as discussed in Comment 6 above. As a result of this we also do not agree that an annual metals report submittal to Ecology should be required in the NPDES Permit. Additionally, since there is no RPE water quality standards for copper, zinc and lead as discussed in Comment 6 above there should be no ambient receiving water hardness data collection requirement. The proposed sampling creates an unjustifiable expense to our customers in our opinion.

We also do not understand the proposed requirement to collect receiving water data for total suspended solids, pH or alkalinity. None of these items are identified or listed as parameters of concern in the draft 2002/2004 Washington State 303(d) list, therefore they are not parameters adversely impacting the ambient receiving water quality. Ambient levels of these parameters do not impact the plant's discharge to the river with the exception that ambient pH is utilized in ammonia evaluations. Because of this we again state our position that limited resources should not be utilized to collect data that is not justified based on evaluations related to complying with water quality standards. We also disagree with the proposed permit requirement to submit annual reports summarizing the proposed data to Ecology.

We do agree with Ecology that temperature data is necessary to adequately evaluate temperature standards can be met. We plan on installing a TIDBITs temperature sensor, or equivalent, and routinely collect, compile and review the temperature data and submit it to Ecology on an annual basis. As a result, we agree to prepare a Receiving Water Sampling and Quality Assurance Plan for collecting temperature data only.

If there is scientific justification that we are unaware of that demonstrates that sampling the effluent and receiving water for copper, zinc and lead is prudent, we request that this be provided to CPU. If scientific justification exists for this sampling, then it is our opinion that the receiving water should only be sampled for copper, zinc and lead for dissolved concentrations at this time since the water quality standards are based on dissolved metals and not total recoverable metals concentrations. Again, we do not want to expend limited resources to collect data that is not justified based on "good science".

Response:

The Department believes that monitoring is necessary. We are requiring the metals to be sampled. Therefore, an annual metals report shall be required. The other parameters: TSS, pH, and alkalinity are used in calculating metals and ammonia toxicity and are therefore necessary as well.

The purpose of taking both the total and dissolved metals allows a site specific translator value to be established. This would be to the benefit of the Permittee and is “good science.” We will continue to require both total and dissolved metals to be tested.

Comments Related to General Conditions

Comment 13, Page 27:

General Condition G7 - Duty to Reapply. We understand that the submittal date for the application for permit renewal will be changed to correspond to 4.5 years from the date this final permit is issued as discussed in Comment 4 above.

Response:

See response to comment 4 above. The date has been changed.

Comment 14, Page 29:

General Condition G19 - Toxic Pollutants. We request clarification that Ecology will provide written notification to CPU if standards or prohibitions established under Section 307(a) of the

Clean Water Act for toxic pollutants change in the future and the time frame provided in the regulations for compliance. This was our understanding based on the discussion during the March 31st meeting.

Response:

If the regulations do change and a change in the permit is required, then we will likely notify you that a change to the permit will occur. Normally the permit will not be modified until the next permit cycle. We recommend that the Permittee keep up-to-date on the regulations in the Federal Register that affect their permit.

Comments Related to Fact Sheet

Comment 15, Page 3:

The second to last sentence in the second paragraph on this page needs to be deleted as agreed during the March 31st meeting and as shown below.

~~*"DCD requires the city to impose a 0.25 percent excise tax on the sale of real property and that the city have a well defined capital improvement program for the utility."*~~

Response:

The sentence was struck as suggested.

Comment 16, Page 3:

The paragraph under PERMIT STATUS should have "*and ammonia.*" deleted since there is not an effluent ammonia limit in the existing permit. This was agreed to during the March 31st meeting.

Response:

The old permit did have a narrative ammonia limit that required the Permittee to optimize plant operation for nitrification and monitor. The language will stand.

Comment 17, Page 8&9:

Ambient Background Data Summary Table. The following values should be changed as shown below to correspond with the data period identified of January 1997 through September 2002 and an annual dry weather period of June through October for 1997 through September 2002. We have attached copies of the raw data spreadsheet showing how the values shown below were calculated. We have also included as an attachment the raw data spreadsheet provided by Ecology showing that the dry weather values calculated by Ecology were for June through September rather than June through October. It was agreed at the March 31st meeting that the dry weather period is defined as June through October therefore available data for these five months should be used to calculate the 10th and 90th percentile values utilized in the permit calculations. We also do not agree with the dry weather ammonia value being calculated as the geometric mean x 1.74. There are 29 dry weather ammonia samples in the data set between January 1997 and September 2002. The Permit Writer's Manual indicates on page VI-26 that the Maximum expected Receiving Water Concentration is defined as the 90th percentile value if there are over

20 data points. The geometric mean x 1.74 is to be utilized for data sets with 1 to 20 values. The 90th percentile for the 29 dry weather ammonia samples is shown in the table below.

Temperature	20.94°C (90th percentile, dry weather June-October) 12.6°C (90th percentile, wet weather November-May) 18.9°C (90th percentile, all data)
pH (high)	8.01 (90th percentile, dry weather June-October) 7.70 (90th percentile, wet weather November-May) 7.90 (90th percentile, all data)
Dissolved Oxygen	9.08 mg/L (10th percentile, dry weather June-October) 9.48 mg/L (10th percentile,, all data)
Total Ammonia-N	16.0 µg/L (90th percentile, dry weather June-October)
Fecal Coliform	180 org./l00mL (90th percentile, dry weather June-October)
Conductivity	59 (90th percentile, all data)
Turbidity	4.2 NTU (90th percentile, all data)
Hardness	13.6 mg/L as CaCO3 - receiving water ambient concentration (from Gibbs & Olson, 2002) 41.5 mg/L as CaCO3 - at the acute mixing zone boundary based on a mass balance of receiving and effluent volume in the acute mixing zone for 2010 conditions. 18.8 mg/L as CaCO3 - at the chronic mixing zone boundary based on a mass balance of receiving and effluent volume in the chronic mixing zone for 2010 conditions.

Response:

The Department does not agree that the background values should be changed. The Department believes that June through September best represents the critical conditions. Our policy is to use data that best represents the critical conditions. The temperature, which is critical for calculating the ammonia toxicity, falls off significantly in October. The receiving water temperatures gathered by Clark Public Utilities and shown on the DMRs were only taken June through September. Because this data was site specific and recent, it represents the best information we have at this time. In checking the validity of the temperature data for the final permit, the DMR data was combined with the Department's ambient monitoring data set for the last three years and the 90th percentile ambient temperature was still 22.1° C. This is the same result as relying on the DMR data alone. The pH value of 8.03 was derived from 1997 – 2002 for June to September at the 90th percentile. The ambient ammonia data was examined for the five year period 1997 – 2000 for the months of June to September and the 90th percentile was 0.16 mg/L with 24 samples as described in your comment. The new ambient ammonia value will be used. The results however made an insignificant difference in the final ammonia limit which will therefore stand. Effluent values are based on the 95th percentiles and not the 90th percentiles.

Comment 18, Page 9:

Table 3 Wastewater Characterization. The ammonia value needs to be changed as shown below because from August 2000 through September 2003 there are 59 effluent ammonia data points in the existing plant's DMR reports.

Ammonia	30.09 mg/L	95th percentile of 59

If Ecology is using only full dry weather sampling periods between June and September on an annual basis between August 2000 through September 2003, i.e., there are 51 effluent ammonia data points in the existing plant's DMR reports between June 2001 and September 2003 and the ammonia value needs to be changed as shown below.

Ammonia	30.45 mg/L	95th, percentile of 51

A spreadsheet showing how both these values are calculated is attached. We believe that all available dry weather ammonia data between August 2000 and September 2003 should be utilized to calculate the 90th percentile value to be used in the permit calculations.

Response:

Table 3 in the fact sheet was amended according to the second scenario you suggested. The ammonia was evaluated for June through September for three years (2001-2003). There was one extra data point in this scenario which brought the total data points to 51. The last sentence said that effluent ammonia should be calculated at the 90^{th} percentile, however, the Department guidance in the permit writers manual recommends using a 95^{th} percentile. The end result is that ammonia and the reasonable potential changes very little. An ammonia limit will still be required.

Comment 19, Page 9:

Temperature and pH- The following input variables should be changed to coincide with the values listed in Comment 17 above.

Upstream temperature 20.94°C, upstream pH 8.01.

These values also need to be utilized in the Summer Ammonia Criteria Calculation Spreadsheet shown on page 25 of the Fact Sheet and the Calculation of pH of a Mixture of Two Flows Spreadsheet shown on page 31 of the Fact Sheet.

Response:

See response to 17 above. The value used for temperature will remain at 22.1º C and the pH will remain at 8.03 S.U.

Comment 20, Page 10:

The first two sentences of the second paragraph of the discussion on Toxic Pollutants under Wastewater Characterization on page 10 should be changed to read as follows:

> "The toxic parameters shown in table 3 above were sampled from August 2000 through September 2003. Ammonia was sampled 59 times during the summer months, however the metals were only sampled three times."

Refer to Comment 18 above for additional information related to this comment.

Response:

As stated in previous responses, the parameters have changed only slightly and the language has been corrected to reflect those changes. The period examined was August 2001 through September 2003 and resulted in 51 ammonia samples.

Comment 21, Page 10:

The receiving water temperature, receiving water hardness and the background level of ammonia listed in the fourth paragraph of the discussion on Toxic Pollutants under Wastewater Characterization on page 10 should be changed to read as follows:

> ..., receiving water temperature 20.94°C, the hardness concentration of the mixed receiving water and the effluent based on a mass balance at the acute and chronic mixing zone boundaries for dry weather conditions in the year 2010 of 41.5 and 18.8 mg/L CaCO3, respectively."

Refer to Comment 17 above for additional information related to this comment.

Response:

As stated above, the temperature value was retained, but the hardness and ammonia were amended. The language in toxic pollutants and under the heading of copper have been amended to explain the mixed hardness values.

Comment 22, Page 10:

Regarding the discussion of Ammonia on page 10, refer to Comment 5 regarding our position and proposal regarding ammonia. The paragraph in the Fact Sheet needs to be re-written to reflect removal of numerical ammonia limits and the inclusion of the requirement to nitrify during dry weather and to monitor effluent ammonia during dry weather (June through October).

Please also refer to the attached spreadsheets for Summer (Dry Weather) Ammonia Criteria Calculations, and Reasonable Potential to Exceed Calculations.

Response:

As stated above under response 17, the ammonia values have been slightly amended as has the Reasonable Potential. These amendments did not result in a change to the final ammonia limits.

Comments 23, Pages 10& 11:

Regarding the discussion of Copper, Zinc and Lead on pages 10 and 11, refer to Comments 6 and 12 regarding our position on metals testing.

The paragraphs in the Fact Sheet regarding the RPE evaluation for copper and zinc need to be re-written to reflect that there currently is no RPE water quality standards for either copper or zinc.

Please also refer to the attached spreadsheets for Hardness Concentrations at the Edge of Mixing Zone Boundary Calculations, Metals Criteria at the Edge of Mixing Zone Boundaries, and Reasonable Potential to Exceed Calculations.

Response:

See responses to comments 6, 12, and 17. The metals portion of the Reasonable Potential evaluation has been redone using a mixed hardness and shows that the metals do not require limits but the permit will require testing.

Comment 24, Page 13:

Regarding the effluent ammonia limits presented for the new facility in the table on page 13, please refer to Comment 5 regarding our position and proposal regarding ammonia. Please also refer to the attached spreadsheets for Summer (Dry Weather) Ammonia Criteria Calculations, and Reasonable Potential to Exceed Calculations.

Response:

See response to comment 5. The ammonia limit will remain in place.

Comment 25, Page 13:

Regarding the second paragraph under Monitoring Requirements on page 13 indicating the need to monitor for lead, refer to Comments 6 and 12 above regarding our position on this parameter.

Response:

The need to monitor lead and other metals still exists and the statement will remain in place.

Comment 26, Page 25:

Summer Ammonia Criteria Calculation - ambient temperature needs to be changed to 20.94°C and ambient pH needs to be changed to 8.01 and the spreadsheet re-calculated. Please see attached Summer (Dry Weather) Ammonia Criteria Calculations for the results with these changes incorporated.

Response:

The Department does not agree that the summer ammonia calculation should be changed. The values used are valid and the table will remain.

Comments 27, Page 26:

Winter Ammonia Criteria Calculation - ambient temperature needs to be changed to 12.6°C and the spreadsheet re-calculated. Please see attached Winter (Wet Weather) Ammonia Criteria Calculations for the results with this change incorporated.

Response:

The Department does not agree that the winter ammonia calculation should be changed. The values used are valid and the table will remain.

Comment 28, Page 27:

Dissolved Oxygen Concentration Following Initial Dilution Spreadsheet - ambient dissolved oxygen concentration needs to be changed to 9.08 mg/L and the spreadsheet re- calculated. Please see attached Dissolved Oxygen Concentration Following Initial Dilution Spreadsheet for the results with this change incorporated.

Response:

As stated above, we will continue to use the June through September data set because we think this best represents the critical condition. The dissolved oxygen value used will remain and does not result in a permit limit.

Comments 29, Pages 28&29:

Reasonable Potential table - the following inputs need to be changed as shown below:

a. Final Ammonia (summer) ambient concentration µg/l - 16.0
b. Final Ammonia (summer) acute water quality standard µg/l - 5,123 (the value Ecology utilized on page 28 of the Fact Sheet is the calculated average monthly limit for ammonia from Ecology's evaluation).
c. Final Ammonia (summer) chronic water quality standard µg/l - 827 (the value Ecology utilized on page 28 of the Fact Sheet is the calculated peak day limit for ammonia from Ecology's evaluation).
d. Final Ammonia (summer) Max. effluent concentration µg/l - 30,090 (based on 59 samples) or 30,450 (based on 51 samples)
e. Final Ammonia (winter) ambient concentration µg/l - 18.1
f. Final Ammonia (winter) acute water quality standard µg/l - 9,447
g. Final Ammonia (winter) chronic water quality standard µg/l - 2,153
h. Final Ammonia (winter) Max. effluent concentration µg/l - 30,090 (based on 59 samples) or 30,450 (based on 51 samples)
i. Final Copper acute water quality standard µg/l - 7.43
j. Final Copper chronic water quality standard µg/l - 2.72
k. Final Silver acute water quality standard µg/l - 0.76
l. Final Zinc acute water quality standard µg/l - 54.32
m. Final Zinc chronic water quality standard µg/l - 25.36

Response:

As stated above, the Reasonable Potential table will be changed for some of the parameters but not as described in the comment. The ammonia summer and winter values have changed in the max concentrations at the edge of the mixing zone, however, a limit is still required. The state water quality limits for the metals have changed and the limits are no longer required.

Comments 30, Pages 29&30:

Permit Limit Calculation Summary - based on Comments 5, 6 and 12 above it is our opinion that numerical permit limits for final ammonia (summer), final copper, and final zinc shown in this table are not required and this table should be removed from the Fact Sheet.

Response:

The Department does not agree that the ammonia permit limit should be dropped, but we do agree that the metals limits are not required and will therefore be removed. We do however, think that the metals values are close enough to the reasonable potential and questionable enough to require more testing.

Comments from The Department of Natural Resources

The Department of Natural Resources is steward of Washington's aquatic lands and their resources. Aquatic lands are managed for current and future citizens of the state to sustain long-term ecosystem and economic viability; and to ensure access to the aquatic lands and the benefits derived from them.

Washington DNR's management authority derives from the State's Constitution (Articles XV, XVII, XXVII), Revised Code (RCW 79.01, 79.90 to 79.100) and Administrative Code (WAC 332-30). As proprietary manager of state-owned aquatic lands Washington State Department of Natural Resources has been directed to manage the lands "…*for the benefit of the public."* in a manner that provides *"…a balance of public benefits for all citizens of the state…"* that includes:

(1) Encouraging direct public use and access;
(2) Fostering Water-dependant uses;
(3) Ensuring environmental protection; and
(4) Utilizing renewable resources." (RCW 79.90.455).

Comment:

After reviewing the Fact Sheet and draft NPDES permit, the department has a concern that past and future discharges may have a long-term affect on the sediments located at the discharge site and down stream from that site. We feel that permit requirements should include base line sediment sampling. We understand that there are no standards in place for fresh water sediment sampling, but that these standards will be completed shortly. Therefore, we would have no objection if the permit requirement stated that baseline sediment sampling is to be completed within a certain time frame after the fresh water sediment sampling standards are in place.

Response:

The Department does not presently see the need to put fresh water sediment standards in the permit, to put such a study for standards in the permit, or even to put an opener for the future standards in this permit. It is not possible at this time to predict what those fresh water sediment standards will look like and what will be accepted. The logical opening will be at the next permit cycle, if the standards have then been adopted. The fresh water sediment standards will best be applied in lakes and quiescent back waters of slow moving rivers combined with discharges that do a poor job of settling solids. Because of the nature of this facility combined with the moving currents of the riverine environment, there will likely be very little discharge of settleable solids or metals. The secondary treatment provided by the SBR will be followed by a filtration system which will remove greater than 85 percent of the settleable solids. The rest of the solids will not readily settle and certainly will not settle in the moving waters of the East Fork of the Lewis River. By the time any solids do settle, they likely will be so dispersed as to be non-detectable. The permit will not be modified.